

20557A US Sequence Listing as filed
SEQUENCE LISTING

<110> Warner-Lambert Co. LLC
Baron, Scott
Hidayetoglu, Debra
Johns, Margaret
Offord, James
Su, T-Zhi
Su, Ti-Zhi

<120> ANIMALS AND CELLS CONTAINING A MUTATED a2/d1 GENE

<130> PC20557 PCT

<150> 60/518,110

<151> 2003-11-07

<150> 60/462,634

<151> 2003-04-14

<160> 31

<170> PatentIn version 3.1

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20557A US Sequence Listing as filed

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 <211> 72
 <212> DNA
 <213> Mus musculus

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<220>
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20557A US Sequence Listing as filed

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<212> DNA
<213> Artificial

<220>
<223> Synthetic oligonucleotide

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<213> Artificial

<220>
<223> Synthetic oligonucleotide

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<210> 10
<211> 2101
<212> DNA
<213> Saccharomyces cerevisiae

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20557A US Sequence Listing as filed

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<211> 20

<212> DNA

<213> Artificial

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<223> Synthetic oligonucleotide

<400> 11

20557A US Sequence Listing as filed

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<400> 12
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<210> 13
<211> 24
<212> DNA
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<220>
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<400> 13
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<210> 14
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<220>
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<210> 15
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<400> 15
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20557A US Sequence Listing as filed

<210> 17
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 <212> PRT
 <213> Mus musculus

<400> 17

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<210> 18
 <211> 41
 <212> PRT
 <213> Mus musculus

<400> 18

Ala Ser Pro Trp Val Asp Asn Ser Arg Thr Pro Asn Lys Ile Asp Leu
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Lys Asp Met Leu Ile Leu Val Asn Val
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<210> 19
 <211> 74
 <212> PRT
 <213> Mus musculus

<400> 19

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Tyr Asp Val Arg Arg Ala Pro Trp Tyr Ile Gln Gly Ala Ala Ser Pro
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Lys Asp Met Leu Ile Leu Val Asn Val Ser Gly Ser Val Ser Gly Leu
 35 40 45

Thr Leu Lys Leu Ile Arg Thr Ser Val Ser Glu Met Leu Glu Thr Leu
 50 55 60

Ser Asp Asp Asp Phe Val Asn Val Ala Ser
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<210> 20
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20557A US Sequence Listing as filed

<212> DNA

<213> Mus musculus

<400> 20

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<210> 21

<211> 2492

<212> DNA

<213> Mus musculus

<400> 21

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20557A US Sequence Listing as filed

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<210> 22
 <211> 123
 <212> DNA
 <213> Mus musculus

<400> 22	
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<210> 23
 <211> 3529
 <212> DNA
 <213> Mus musculus

<400> 23	
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20557A US Sequence Listing as filed

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20557A US Sequence Listing as filed

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<210> 24

<211> 222

<212> DNA

<213> Mus musculus

<400> 24

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20557A US Sequence Listing as filed

<210> 25
 <211> 1103
 <212> PRT
 <213> Mus musculus

<400> 25

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Ile Lys Ser Trp Val Asp Lys Met Gln Glu Asp Leu Val Thr Leu Ala
 35 40 45

Lys Thr Ala Ser Gly Val Thr Gln Leu Ala Asp Ile Tyr Glu Lys Tyr
 50 55 60

Gln Asp Leu Tyr Thr Val Glu Pro Asn Asn Ala Arg Gln Leu Val Glu
 65 70 75 80

Ile Ala Ala Arg Asp Ile Glu Lys Leu Leu Ser Asn Arg Ser Lys Ala
 85 90 95

Leu Val Arg Leu Ala Met Glu Ala Glu Lys Val Gln Ala Ala His Gln
 100 105 110

Trp Arg Glu Asp Phe Ala Ser Asn Glu Val Val Tyr Tyr Asn Ala Lys
 115 120 125

Asp Asp Leu Asp Pro Glu Arg Asn Glu Ser Glu Pro Gly Ser Gln Arg
 130 135 140

Ile Lys Pro Val Phe Ile Glu Asp Ala Asn Phe Gly Arg Gln Ile Ser
 145 150 155 160

Tyr Gln His Ala Ala Val His Ile Pro Thr Asp Ile Tyr Glu Gly Ser
 165 170 175

Thr Ile Val Leu Asn Glu Leu Asn Trp Thr Ser Ala Leu Asp Glu Val
 180 185 190

Phe Lys Arg Asn Arg Asp Glu Asp Pro Thr Leu Leu Trp Gln Val Phe
 195 200 205

Gly Ser Ala Thr Gly Leu Ala Arg Tyr Tyr Pro Ala Ser Pro Trp Val
 210 215 220

20557A US Sequence Listing as filed

Asp Asn Ser Arg Thr Pro Asn Lys Ile Asp Leu Tyr Asp Val Arg Arg
225 230 235 240

Arg Pro Trp Tyr Ile Gln Gly Ala Ala Ser Pro Lys Asp Met Leu Ile
245 250 255

Leu Val Asp Val Ser Gly Ser Val Ser Gly Leu Thr Leu Lys Leu Ile
260 265 270

Arg Thr Ser Val Ser Glu Met Leu Glu Thr Leu Ser Asp Asp Asp Phe
275 280 285

Val Asn Val Ala Ser Phe Asn Ser Asn Ala Gln Asp Val Ser Cys Phe
290 295 300

Gln His Leu Val Gln Ala Asn Val Arg Asn Lys Lys Val Leu Lys Asp
305 310 315 320

Ala Val Asn Asn Ile Thr Ala Lys Gly Ile Thr Asp Tyr Lys Lys Gly
325 330 335

Phe Ser Phe Ala Phe Glu Gln Leu Leu Asn Tyr Asn Val Ser Arg Ala
340 345 350

Asn Cys Asn Lys Ile Ile Met Leu Phe Thr Asp Gly Gly Glu Glu Arg
355 360 365

Ala Gln Glu Ile Phe Ala Lys Tyr Asn Lys Asp Lys Lys Val Arg Val
370 375 380

Phe Thr Phe Ser Val Gly Gln His Asn Tyr Asp Arg Gly Pro Ile Gln
385 390 395 400

Trp Met Ala Cys Glu Asn Lys Gly Tyr Tyr Tyr Glu Ile Pro Ser Ile
405 410 415

Gly Ala Ile Arg Ile Asn Thr Gln Glu Tyr Leu Asp Val Leu Gly Arg
420 425 430

Pro Met Val Leu Ala Gly Asp Lys Ala Lys Gln Val Gln Trp Thr Asn
435 440 445

Val Tyr Leu Asp Ala Leu Glu Leu Gly Leu Val Ile Thr Gly Thr Leu
450 455 460

Pro Val Phe Asn Val Thr Gly Gln Ser Glu Asn Lys Thr Asn Leu Lys
465 470 475 480

20557A US Sequence Listing as filed

Asn Gln Leu Ile Leu Gly Val Met Gly Val Asp Val Ser Leu Glu Asp
485 490 495

Ile Lys Arg Leu Thr Pro Arg Phe Thr Leu Cys Pro Asn Gly Tyr Tyr
500 505 510

Phe Ala Ile Asp Pro Asn Gly Tyr Val Leu Leu His Pro Asn Leu Gln
515 520 525

Pro Lys Pro Ile Gly Val Gly Ile Pro Thr Ile Asn Leu Arg Lys Arg
530 535 540

Arg Pro Asn Val Gln Asn Pro Lys Ser Gln Glu Pro Val Thr Leu Asp
545 550 555 560

Phe Leu Asp Ala Glu Leu Glu Asn Glu Ile Lys Val Glu Ile Arg Asn
565 570 575

Lys Met Ile Asp Gly Glu Ser Gly Glu Lys Thr Phe Arg Thr Leu Val
580 585 590

Lys Ser Gln Asp Glu Arg Tyr Ile Asp Lys Gly Asn Arg Thr Tyr Thr
595 600 605

Trp Thr Pro Val Asn Gly Thr Asp Tyr Ser Leu Ala Leu Val Leu Pro
610 615 620

Thr Tyr Ser Phe Tyr Tyr Ile Lys Ala Lys Leu Glu Glu Thr Ile Thr
625 630 635 640

Gln Ala Arg Tyr Ser Glu Thr Leu Lys Pro Asp Asn Phe Glu Glu Ser
645 650 655

Gly Tyr Thr Phe Ile Ala Pro Arg Glu Tyr Cys Asn Asp Leu Lys Pro
660 665 670

Ser Asp Asn Asn Thr Glu Phe Leu Leu Asn Phe Asn Glu Phe Ile Asp
675 680 685

Arg Lys Thr Pro Asn Asn Pro Ser Cys Asn Thr Asp Leu Ile Asn Arg
690 695 700

Ile Leu Leu Asp Ala Gly Phe Thr Asn Glu Leu Val Gln Asn Tyr Trp
705 710 715 720

Ser Lys Gln Lys Asn Ile Lys Gly Val Lys Ala Arg Phe Val Val Thr
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20557A US Sequence Listing as filed

725

730

735

Asp Gly Gly Ile Thr Arg Val Tyr Pro Lys Glu Ala Gly Glu Asn Trp
 740 745 750

Gln Glu Asn Pro Glu Thr Tyr Glu Asp Ser Phe Tyr Lys Arg Ser Leu
 755 760 765

Asp Asn Asp Asn Tyr Val Phe Thr Ala Pro Tyr Phe Asn Lys Ser Gly
 770 775 780

Pro Gly Ala Tyr Glu Ser Gly Ile Met Val Ser Lys Ala Val Glu Leu
 785 790 795 800

Tyr Ile Gln Gly Lys Leu Leu Lys Pro Ala Val Val Gly Ile Lys Ile
 805 810 815

Asp Val Asn Ser Trp Ile Glu Asn Phe Thr Lys Thr Ser Ile Arg Asp
 820 825 830

Pro Cys Ala Gly Pro Val Cys Asp Cys Lys Arg Asn Ser Asp Val Met
 835 840 845

Asp Cys Val Ile Leu Asp Asp Gly Gly Phe Leu Leu Met Ala Asn His
 850 855 860

Asp Asp Tyr Thr Asn Gln Ile Gly Arg Phe Phe Gly Glu Ile Asp Pro
 865 870 875 880

Ser Met Met Arg His Leu Val Asn Ile Ser Leu Tyr Ala Phe Asn Lys
 885 890 895

Ser Tyr Asp Tyr Gln Ser Val Cys Asp Pro Gly Ala Ala Pro Lys Gln
 900 905 910

Gly Ala Gly His Arg Ser Ala Tyr Val Pro Ser Ile Ala Asp Ile Leu
 915 920 925

Gln Ile Gly Trp Trp Ala Thr Ala Ala Ala Trp Ser Ile Leu Gln Gln
 930 935 940

Leu Leu Leu Ser Leu Thr Phe Pro Arg Leu Leu Glu Ala Val Glu Met
 945 950 955 960

Glu Glu Asp Asp Phe Thr Ala Ser Leu Ser Lys Gln Ser Cys Ile Thr
 965 970 975

20557A US Sequence Listing as filed

Glu Gln Thr Gln Tyr Phe Phe Lys Asn Asp Thr Lys Ser Phe Ser Gly
980 985 990

Leu Leu Asp Cys Gly Asn Cys Ser Arg Ile Phe His Val Glu Lys Leu
995 1000 1005

Met Asn Thr Asn Leu Val Phe Ile Met Val Glu Ser Lys Gly Thr
1010 1015 1020

Cys Pro Cys Asp Thr Arg Leu Leu Met Gln Ala Glu Gln Thr Ser
1025 1030 1035

Asp Gly Pro Asp Pro Cys Asp Met Val Lys Gln Pro Arg Tyr Arg
1040 1045 1050

Lys Gly Pro Asp Val Cys Phe Asp Asn Asn Val Leu Glu Asp Tyr
1055 1060 1065

Thr Asp Cys Gly Gly Val Ser Gly Leu Asn Pro Ser Leu Trp Ser
1070 1075 1080

Ile Phe Gly Leu Gln Phe Ile Leu Leu Trp Leu Val Ser Gly Ser
1085 1090 1095

Arg His Tyr Leu Leu
1100

<210> 26
<211> 1091
<212> PRT
<213> Mus musculus

<400> 26

Met Ala Ala Gly Cys Leu Leu Ala Leu Thr Leu Thr Leu Phe Gln Ser
1 5 10 15

Gly Leu Ile Gly Pro Ser Ser Glu Glu Pro Phe Pro Ser Pro Val Thr
20 25 30

Ile Lys Ser Trp Val Asp Lys Met Gln Glu Asp Leu Val Thr Leu Ala
35 40 45

Lys Thr Ala Ser Gly Val Thr Gln Leu Ala Asp Ile Tyr Glu Lys Tyr
50 55 60

Gln Asp Leu Tyr Thr Val Glu Pro Asn Asn Ala Arg Gln Leu Val Glu
65 70 75 80

20557A US Sequence Listing as filed

Ile Ala Ala Arg Asp Ile Glu Lys Leu Leu Ser Asn Arg Ser Lys Ala
85 90 95

Leu Val Arg Leu Ala Met Glu Ala Glu Lys Val Gln Ala Ala His Gln
100 105 110

Trp Arg Glu Asp Phe Ala Ser Asn Glu Val Val Tyr Tyr Asn Ala Lys
115 120 125

Asp Asp Leu Asp Pro Glu Arg Asn Glu Ser Glu Pro Gly Ser Gln Arg
130 135 140

Ile Lys Pro Val Phe Ile Glu Asp Ala Asn Phe Gly Arg Gln Ile Ser
145 150 155 160

Tyr Gln His Ala Ala Val His Ile Pro Thr Asp Ile Tyr Glu Gly Ser
165 170 175

Thr Ile Val Leu Asn Glu Leu Asn Trp Thr Ser Ala Leu Asp Glu Val
180 185 190

Phe Lys Arg Asn Arg Asp Glu Asp Pro Thr Leu Leu Trp Gln Val Phe
195 200 205

Gly Ser Ala Thr Gly Leu Ala Arg Tyr Tyr Pro Ala Ser Pro Trp Val
210 215 220

Asp Asn Ser Arg Thr Pro Asn Lys Ile Asp Leu Tyr Asp Val Arg Arg
225 230 235 240

Arg Pro Trp Tyr Ile Gln Gly Ala Ala Ser Pro Lys Asp Met Leu Ile
245 250 255

Leu Val Asp Val Ser Gly Ser Val Ser Gly Leu Thr Leu Lys Leu Ile
260 265 270

Arg Thr Ser Val Ser Glu Met Leu Glu Thr Leu Ser Asp Asp Asp Phe
275 280 285

Val Asn Val Ala Ser Phe Asn Ser Asn Ala Gln Asp Val Ser Cys Phe
290 295 300

Gln His Leu Val Gln Ala Asn Val Arg Asn Lys Lys Val Leu Lys Asp
305 310 315 320

Ala Val Asn Asn Ile Thr Ala Lys Gly Ile Thr Asp Tyr Lys Lys Gly
325 330 335

20557A US Sequence Listing as filed

Phe Ser Phe Ala Phe Glu Gln Leu Leu Asn Tyr Asn Val Ser Arg Ala
340 345 350

Asn Cys Asn Lys Ile Ile Met Leu Phe Thr Asp Gly Gly Glu Glu Arg
355 360 365

Ala Gln Glu Ile Phe Ala Lys Tyr Asn Lys Asp Lys Lys Val Arg Val
370 375 380

Phe Thr Phe Ser Val Gly Gln His Asn Tyr Asp Arg Gly Pro Ile Gln
385 390 395 400

Trp Met Ala Cys Glu Asn Lys Gly Tyr Tyr Tyr Glu Ile Pro Ser Ile
405 410 415

Gly Ala Ile Arg Ile Asn Thr Gln Glu Tyr Leu Asp Val Leu Gly Arg
420 425 430

Pro Met Val Leu Ala Gly Asp Lys Ala Lys Gln Val Gln Trp Thr Asn
435 440 445

Val Tyr Leu Asp Ala Leu Glu Leu Gly Leu Val Ile Thr Gly Thr Leu
450 455 460

Pro Val Phe Asn Val Thr Gly Gln Ser Glu Asn Lys Thr Asn Leu Lys
465 470 475 480

Asn Gln Leu Ile Leu Gly Val Met Gly Val Asp Val Ser Leu Glu Asp
485 490 495

Ile Lys Arg Leu Thr Pro Arg Phe Thr Leu Cys Pro Asn Gly Tyr Tyr
500 505 510

Phe Ala Ile Asp Pro Asn Gly Tyr Val Leu Leu His Pro Asn Leu Gln
515 520 525

Pro Lys Asn Pro Lys Ser Gln Glu Pro Val Thr Leu Asp Phe Leu Asp
530 535 540

Ala Glu Leu Glu Asn Glu Ile Lys Val Glu Ile Arg Asn Lys Met Ile
545 550 555 560

Asp Gly Glu Ser Gly Glu Lys Thr Phe Arg Thr Leu Val Lys Ser Gln
565 570 575

Asp Glu Arg Tyr Ile Asp Lys Gly Asn Arg Thr Tyr Thr Trp Thr Pro
580 585 590

20557A US Sequence Listing as filed

Val Asn Gly Thr Asp Tyr Ser Leu Ala Leu Val Leu Pro Thr Tyr Ser
595 600 605

Phe Tyr Tyr Ile Lys Ala Lys Leu Glu Glu Thr Ile Thr Gln Ala Arg
610 615 620

Ser Lys Lys Gly Lys Met Lys Asp Ser Glu Thr Leu Lys Pro Asp Asn
625 630 635 640

Phe Glu Glu Ser Gly Tyr Thr Phe Ile Ala Pro Arg Glu Tyr Cys Asn
645 650 655

Asp Leu Lys Pro Ser Asp Asn Asn Thr Glu Phe Leu Leu Asn Phe Asn
660 665 670

Glu Phe Ile Asp Arg Lys Thr Pro Asn Asn Pro Ser Cys Asn Thr Asp
675 680 685

Leu Ile Asn Arg Ile Leu Leu Asp Ala Gly Phe Thr Asn Glu Leu Val
690 695 700

Gln Asn Tyr Trp Ser Lys Gln Lys Asn Ile Lys Gly Val Lys Ala Arg
705 710 715 720

Phe Val Val Thr Asp Gly Gly Ile Thr Arg Val Tyr Pro Lys Glu Ala
725 730 735

Gly Glu Asn Trp Gln Glu Asn Pro Glu Thr Tyr Glu Asp Ser Phe Tyr
740 745 750

Lys Arg Ser Leu Asp Asn Asp Asn Tyr Val Phe Thr Ala Pro Tyr Phe
755 760 765

Asn Lys Ser Gly Pro Gly Ala Tyr Glu Ser Gly Ile Met Val Ser Lys
770 775 780

Ala Val Glu Leu Tyr Ile Gln Gly Lys Leu Leu Lys Pro Ala Val Val
785 790 795 800

Gly Ile Lys Ile Asp Val Asn Ser Trp Ile Glu Asn Phe Thr Lys Thr
805 810 815

Ser Ile Arg Asp Pro Cys Ala Gly Pro Val Cys Asp Cys Lys Arg Asn
820 825 830

Ser Asp Val Met Asp Cys Val Ile Leu Asp Asp Gly Gly Phe Leu Leu

20557A US Sequence Listing as filed

835

840

845

Met Ala Asn His Asp Asp Tyr Thr Asn Gln Ile Gly Arg Phe Phe Gly
850 855 860

Glu Ile Asp Pro Ser Met Met Arg His Leu Val Asn Ile Ser Leu Tyr
865 870 875 880

Ala Phe Asn Lys Ser Tyr Asp Tyr Gln Ser Val Cys Asp Pro Gly Ala
885 890 895

Ala Pro Lys Gln Gly Ala Gly His Arg Ser Ala Tyr Val Pro Ser Ile
900 905 910

Ala Asp Ile Leu Gln Ile Gly Trp Trp Ala Thr Ala Ala Ala Trp Ser
915 920 925

Ile Leu Gln Gln Leu Leu Leu Ser Leu Thr Phe Pro Arg Leu Leu Glu
930 935 940

Ala Val Glu Met Glu Glu Asp Asp Phe Thr Ala Ser Leu Ser Lys Gln
945 950 955 960

Ser Cys Ile Thr Glu Gln Thr Gln Tyr Phe Phe Lys Asn Asp Thr Lys
965 970 975

Ser Phe Ser Gly Leu Leu Asp Cys Gly Asn Cys Ser Arg Ile Phe His
980 985 990

Val Glu Lys Leu Met Asn Thr Asn Leu Val Phe Ile Met Val Glu Ser
995 1000 1005

Lys Gly Thr Cys Pro Cys Asp Thr Arg Leu Leu Met Gln Ala Glu
1010 1015 1020

Gln Thr Ser Asp Gly Pro Asp Pro Cys Asp Met Val Lys Gln Pro
1025 1030 1035

Arg Tyr Arg Lys Gly Pro Asp Val Cys Phe Asp Asn Asn Val Leu
1040 1045 1050

Glu Asp Tyr Thr Asp Cys Gly Gly Val Ser Gly Leu Asn Pro Ser
1055 1060 1065

Leu Trp Ser Ile Phe Gly Leu Gln Phe Ile Leu Leu Trp Leu Val
1070 1075 1080

20557A US Sequence Listing as filed

Ser Gly Ser Arg His Tyr Leu Leu
1085 1090

<210> 27
<211> 1086
<212> PRT
<213> Mus musculus

<400> 27

Met Ala Ala Gly Cys Leu Leu Ala Leu Thr Leu Thr Leu Phe Gln Ser
1 5 10 15

Gly Leu Ile Gly Pro Ser Ser Glu Glu Pro Phe Pro Ser Pro Val Thr
20 25 30

Ile Lys Ser Trp Val Asp Lys Met Gln Glu Asp Leu Val Thr Leu Ala
35 40 45

Lys Thr Ala Ser Gly Val Thr Gln Leu Ala Asp Ile Tyr Glu Lys Tyr
50 55 60

Gln Asp Leu Tyr Thr Val Glu Pro Asn Asn Ala Arg Gln Leu Val Glu
65 70 75 80

Ile Ala Ala Arg Asp Ile Glu Lys Leu Leu Ser Asn Arg Ser Lys Ala
85 90 95

Leu Val Arg Leu Ala Met Glu Ala Glu Lys Val Gln Ala Ala His Gln
100 105 110

Trp Arg Glu Asp Phe Ala Ser Asn Glu Val Val Tyr Tyr Asn Ala Lys
115 120 125

Asp Asp Leu Asp Pro Glu Arg Asn Glu Ser Glu Pro Gly Ser Gln Arg
130 135 140

Ile Lys Pro Val Phe Ile Glu Asp Ala Asn Phe Gly Arg Gln Ile Ser
145 150 155 160

Tyr Gln His Ala Ala Val His Ile Pro Thr Asp Ile Tyr Glu Gly Ser
165 170 175

Thr Ile Val Leu Asn Glu Leu Asn Trp Thr Ser Ala Leu Asp Glu Val
180 185 190

Phe Lys Arg Asn Arg Asp Glu Asp Pro Thr Leu Leu Trp Gln Val Phe
195 200 205

20557A US Sequence Listing as filed

Gly Ser Ala Thr Gly Leu Ala Arg Tyr Tyr Pro Ala Ser Pro Trp Val
210 215 220

Asp Asn Ser Arg Thr Pro Asn Lys Ile Asp Leu Tyr Asp Val Arg Arg
225 230 235 240

Arg Pro Trp Tyr Ile Gln Gly Ala Ala Ser Pro Lys Asp Met Leu Ile
245 250 255

Leu Val Asp Val Ser Gly Ser Val Ser Gly Leu Thr Leu Lys Leu Ile
260 265 270

Arg Thr Ser Val Ser Glu Met Leu Glu Thr Leu Ser Asp Asp Asp Phe
275 280 285

Val Asn Val Ala Ser Phe Asn Ser Asn Ala Gln Asp Val Ser Cys Phe
290 295 300

Gln His Leu Val Gln Ala Asn Val Arg Asn Lys Lys Val Leu Lys Asp
305 310 315 320

Ala Val Asn Asn Ile Thr Ala Lys Gly Ile Thr Asp Tyr Lys Lys Gly
325 330 335

Phe Ser Phe Ala Phe Glu Gln Leu Leu Asn Tyr Asn Val Ser Arg Ala
340 345 350

Asn Cys Asn Lys Ile Ile Met Leu Phe Thr Asp Gly Gly Glu Glu Arg
355 360 365

Ala Gln Glu Ile Phe Ala Lys Tyr Asn Lys Asp Lys Lys Val Arg Val
370 375 380

Phe Thr Phe Ser Val Gly Gln His Asn Tyr Asp Arg Gly Pro Ile Gln
385 390 395 400

Trp Met Ala Cys Glu Asn Lys Gly Tyr Tyr Tyr Glu Ile Pro Ser Ile
405 410 415

Gly Ala Ile Arg Ile Asn Thr Gln Glu Tyr Leu Asp Val Leu Gly Arg
420 425 430

Pro Met Val Leu Ala Gly Asp Lys Ala Lys Gln Val Gln Trp Thr Asn
435 440 445

Val Tyr Leu Asp Ala Leu Glu Leu Gly Leu Val Ile Thr Gly Thr Leu
450 455 460

20557A US Sequence Listing as filed

Pro Val Phe Asn Val Thr Gly Gln Ser Glu Asn Lys Thr Asn Leu Lys
465 470 475 480

Asn Gln Leu Ile Leu Gly Val Met Gly Val Asp Val Ser Leu Glu Asp
485 490 495

Ile Lys Arg Leu Thr Pro Arg Phe Thr Leu Cys Pro Asn Gly Tyr Tyr
500 505 510

Phe Ala Ile Asp Pro Asn Gly Tyr Val Leu Leu His Pro Asn Leu Gln
515 520 525

Pro Lys Glu Pro Val Thr Leu Asp Phe Leu Asp Ala Glu Leu Glu Asn
530 535 540

Glu Ile Lys Val Glu Ile Arg Asn Lys Met Ile Asp Gly Glu Ser Gly
545 550 555 560

Glu Lys Thr Phe Arg Thr Leu Val Lys Ser Gln Asp Glu Arg Tyr Ile
565 570 575

Asp Lys Gly Asn Arg Thr Tyr Thr Trp Thr Pro Val Asn Gly Thr Asp
580 585 590

Tyr Ser Leu Ala Leu Val Leu Pro Thr Tyr Ser Phe Tyr Tyr Ile Lys
595 600 605

Ala Lys Leu Glu Glu Thr Ile Thr Gln Ala Arg Ser Lys Lys Gly Lys
610 615 620

Met Lys Asp Ser Glu Thr Leu Lys Pro Asp Asn Phe Glu Glu Ser Gly
625 630 635 640

Tyr Thr Phe Ile Ala Pro Arg Glu Tyr Cys Asn Asp Leu Lys Pro Ser
645 650 655

Asp Asn Asn Thr Glu Phe Leu Leu Asn Phe Asn Glu Phe Ile Asp Arg
660 665 670

Lys Thr Pro Asn Asn Pro Ser Cys Asn Thr Asp Leu Ile Asn Arg Ile
675 680 685

Leu Leu Asp Ala Gly Phe Thr Asn Glu Leu Val Gln Asn Tyr Trp Ser
690 695 700

Lys Gln Lys Asn Ile Lys Gly Val Lys Ala Arg Phe Val Val Thr Asp
705 710 715 720

20557A US Sequence Listing as filed

Gly Gly Ile Thr Arg Val Tyr Pro Lys Glu Ala Gly Glu Asn Trp Gln
725 730 735

Glu Asn Pro Glu Thr Tyr Glu Asp Ser Phe Tyr Lys Arg Ser Leu Asp
740 745 750

Asn Asp Asn Tyr Val Phe Thr Ala Pro Tyr Phe Asn Lys Ser Gly Pro
755 760 765

Gly Ala Tyr Glu Ser Gly Ile Met Val Ser Lys Ala Val Glu Leu Tyr
770 775 780

Ile Gln Gly Lys Leu Leu Lys Pro Ala Val Val Gly Ile Lys Ile Asp
785 790 795 800

Val Asn Ser Trp Ile Glu Asn Phe Thr Lys Thr Ser Ile Arg Asp Pro
805 810 815

Cys Ala Gly Pro Val Cys Asp Cys Lys Arg Asn Ser Asp Val Met Asp
820 825 830

Cys Val Ile Leu Asp Asp Gly Gly Phe Leu Leu Met Ala Asn His Asp
835 840 845

Asp Tyr Thr Asn Gln Ile Gly Arg Phe Phe Gly Glu Ile Asp Pro Ser
850 855 860

Met Met Arg His Leu Val Asn Ile Ser Leu Tyr Ala Phe Asn Lys Ser
865 870 875 880

Tyr Asp Tyr Gln Ser Val Cys Asp Pro Gly Ala Ala Pro Lys Gln Gly
885 890 895

Ala Gly His Arg Ser Ala Tyr Val Pro Ser Ile Ala Asp Ile Leu Gln
900 905 910

Ile Gly Trp Trp Ala Thr Ala Ala Ala Trp Ser Ile Leu Gln Gln Leu
915 920 925

Leu Leu Ser Leu Thr Phe Pro Arg Leu Leu Glu Ala Val Glu Met Glu
930 935 940

Glu Asp Asp Phe Thr Ala Ser Leu Ser Lys Gln Ser Cys Ile Thr Glu
945 950 955 960

Gln Thr Gln Tyr Phe Phe Lys Asn Asp Thr Lys Ser Phe Ser Gly Leu
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20557A US Sequence Listing as filed

965

970

975

Leu Asp Cys Gly Asn Cys Ser Arg Ile Phe His Val Glu Lys Leu Met
980 985 990

Asn Thr Asn Leu Val Phe Ile Met Val Glu Ser Lys Gly Thr Cys Pro
995 1000 1005

Cys Asp Thr Arg Leu Leu Met Gln Ala Glu Gln Thr Ser Asp Gly
1010 1015 1020

Pro Asp Pro Cys Asp Met Val Lys Gln Pro Arg Tyr Arg Lys Gly
1025 1030 1035

Pro Asp Val Cys Phe Asp Asn Asn Val Leu Glu Asp Tyr Thr Asp
1040 1045 1050

Cys Gly Gly Val Ser Gly Leu Asn Pro Ser Leu Trp Ser Ile Phe
1055 1060 1065

Gly Leu Gln Phe Ile Leu Leu Trp Leu Val Ser Gly Ser Arg His
1070 1075 1080

Tyr Leu Leu
1085

<210> 28
<211> 1079
<212> PRT
<213> Mus musculus

<400> 28

Met Ala Ala Gly Cys Leu Leu Ala Leu Thr Leu Thr Leu Phe Gln Ser
1 5 10 15

Gly Leu Ile Gly Pro Ser Ser Glu Glu Pro Phe Pro Ser Pro Val Thr
20 25 30

Ile Lys Ser Trp Val Asp Lys Met Gln Glu Asp Leu Val Thr Leu Ala
35 40 45

Lys Thr Ala Ser Gly Val Thr Gln Leu Ala Asp Ile Tyr Glu Lys Tyr
50 55 60

Gln Asp Leu Tyr Thr Val Glu Pro Asn Asn Ala Arg Gln Leu Val Glu
65 70 75 80

Ile Ala Ala Arg Asp Ile Glu Lys Leu Leu Ser Asn Arg Ser Lys Ala
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20557A US Sequence Listing as filed

85

90

95

Leu Val Arg Leu Ala Met Glu Ala Glu Lys Val Gln Ala Ala His Gln
100 105 110

Trp Arg Glu Asp Phe Ala Ser Asn Glu Val Val Tyr Tyr Asn Ala Lys
115 120 125

Asp Asp Leu Asp Pro Glu Arg Asn Glu Ser Glu Pro Gly Ser Gln Arg
130 135 140

Ile Lys Pro Val Phe Ile Glu Asp Ala Asn Phe Gly Arg Gln Ile Ser
145 150 155 160

Tyr Gln His Ala Ala Val His Ile Pro Thr Asp Ile Tyr Glu Gly Ser
165 170 175

Thr Ile Val Leu Asn Glu Leu Asn Trp Thr Ser Ala Leu Asp Glu Val
180 185 190

Phe Lys Arg Asn Arg Asp Glu Asp Pro Thr Leu Leu Trp Gln Val Phe
195 200 205

Gly Ser Ala Thr Gly Leu Ala Arg Tyr Tyr Pro Ala Ser Pro Trp Val
210 215 220

Asp Asn Ser Arg Thr Pro Asn Lys Ile Asp Leu Tyr Asp Val Arg Arg
225 230 235 240

Arg Pro Trp Tyr Ile Gln Gly Ala Ala Ser Pro Lys Asp Met Leu Ile
245 250 255

Leu Val Asp Val Ser Gly Ser Val Ser Gly Leu Thr Leu Lys Leu Ile
260 265 270

Arg Thr Ser Val Ser Glu Met Leu Glu Thr Leu Ser Asp Asp Asp Phe
275 280 285

Val Asn Val Ala Ser Phe Asn Ser Asn Ala Gln Asp Val Ser Cys Phe
290 295 300

Gln His Leu Val Gln Ala Asn Val Arg Asn Lys Lys Val Leu Lys Asp
305 310 315 320

Ala Val Asn Asn Ile Thr Ala Lys Gly Ile Thr Asp Tyr Lys Lys Gly
325 330 335

20557A US Sequence Listing as filed

Phe Ser Phe Ala Phe Glu Gln Leu Leu Asn Tyr Asn Val Ser Arg Ala
340 345 350

Asn Cys Asn Lys Ile Ile Met Leu Phe Thr Asp Gly Gly Glu Glu Arg
355 360 365

Ala Gln Glu Ile Phe Ala Lys Tyr Asn Lys Asp Lys Lys Val Arg Val
370 375 380

Phe Thr Phe Ser Val Gly Gln His Asn Tyr Asp Arg Gly Pro Ile Gln
385 390 395 400

Trp Met Ala Cys Glu Asn Lys Gly Tyr Tyr Tyr Glu Ile Pro Ser Ile
405 410 415

Gly Ala Ile Arg Ile Asn Thr Gln Glu Tyr Leu Asp Val Leu Gly Arg
420 425 430

Pro Met Val Leu Ala Gly Asp Lys Ala Lys Gln Val Gln Trp Thr Asn
435 440 445

Val Tyr Leu Asp Ala Leu Glu Leu Gly Leu Val Ile Thr Gly Thr Leu
450 455 460

Pro Val Phe Asn Val Thr Gly Gln Ser Glu Asn Lys Thr Asn Leu Lys
465 470 475 480

Asn Gln Leu Ile Leu Gly Val Met Gly Val Asp Val Ser Leu Glu Asp
485 490 495

Ile Lys Arg Leu Thr Pro Arg Phe Thr Leu Cys Pro Asn Gly Tyr Tyr
500 505 510

Phe Ala Ile Asp Pro Asn Gly Tyr Val Leu Leu His Pro Asn Leu Gln
515 520 525

Pro Lys Glu Pro Val Thr Leu Asp Phe Leu Asp Ala Glu Leu Glu Asn
530 535 540

Glu Ile Lys Val Glu Ile Arg Asn Lys Met Ile Asp Gly Glu Ser Gly
545 550 555 560

Glu Lys Thr Phe Arg Thr Leu Val Lys Ser Gln Asp Glu Arg Tyr Ile
565 570 575

Asp Lys Gly Asn Arg Thr Tyr Thr Trp Thr Pro Val Asn Gly Thr Asp
580 585 590

20557A US Sequence Listing as filed

Tyr Ser Leu Ala Leu Val Leu Pro Thr Tyr Ser Phe Tyr Tyr Ile Lys
595 600 605

Ala Lys Leu Glu Glu Thr Ile Thr Gln Ala Arg Tyr Ser Glu Thr Leu
610 615 620

Lys Pro Asp Asn Phe Glu Glu Ser Gly Tyr Thr Phe Ile Ala Pro Arg
625 630 635 640 645

Glu Tyr Cys Asn Asp Leu Lys Pro Ser Asp Asn Asn Thr Glu Phe Leu
645 650 655

Leu Asn Phe Asn Glu Phe Ile Asp Arg Lys Thr Pro Asn Asn Pro Ser
660 665 670

Cys Asn Thr Asp Leu Ile Asn Arg Ile Leu Leu Asp Ala Gly Phe Thr
675 680 685

Asn Glu Leu Val Gln Asn Tyr Trp Ser Lys Gln Lys Asn Ile Lys Gly
690 695 700

Val Lys Ala Arg Phe Val Val Thr Asp Gly Gly Ile Thr Arg Val Tyr
705 710 715 720

Pro Lys Glu Ala Gly Glu Asn Trp Gln Glu Asn Pro Glu Thr Tyr Glu
725 730 735

Asp Ser Phe Tyr Lys Arg Ser Leu Asp Asn Asp Asn Tyr Val Phe Thr
740 745 750

Ala Pro Tyr Phe Asn Lys Ser Gly Pro Gly Ala Tyr Glu Ser Gly Ile
755 760 765

Met Val Ser Lys Ala Val Glu Leu Tyr Ile Gln Gly Lys Leu Leu Lys
770 775 780

Pro Ala Val Val Gly Ile Lys Ile Asp Val Asn Ser Trp Ile Glu Asn
785 790 795 800

Phe Thr Lys Thr Ser Ile Arg Asp Pro Cys Ala Gly Pro Val Cys Asp
805 810 815

Cys Lys Arg Asn Ser Asp Val Met Asp Cys Val Ile Leu Asp Asp Gly
820 825 830

Gly Phe Leu Leu Met Ala Asn His Asp Asp Tyr Thr Asn Gln Ile Gly
835 840 845

20557A US Sequence Listing as filed

Arg Phe Phe Gly Glu Ile Asp Pro Ser Met Met Arg His Leu Val Asn
850 855 860

Ile Ser Leu Tyr Ala Phe Asn Lys Ser Tyr Asp Tyr Gln Ser Val Cys
865 870 875 880

Asp Pro Gly Ala Ala Pro Lys Gln Gly Ala Gly His Arg Ser Ala Tyr
885 890 895

Val Pro Ser Ile Ala Asp Ile Leu Gln Ile Gly Trp Trp Ala Thr Ala
900 905 910

Ala Ala Trp Ser Ile Leu Gln Gln Leu Leu Leu Ser Leu Thr Phe Pro
915 920 925

Arg Leu Leu Glu Ala Val Glu Met Glu Glu Asp Asp Phe Thr Ala Ser
930 935 940

Leu Ser Lys Gln Ser Cys Ile Thr Glu Gln Thr Gln Tyr Phe Phe Lys
945 950 955 960

Asn Asp Thr Lys Ser Phe Ser Gly Leu Leu Asp Cys Gly Asn Cys Ser
965 970 975

Arg Ile Phe His Val Glu Lys Leu Met Asn Thr Asn Leu Val Phe Ile
980 985 990

Met Val Glu Ser Lys Gly Thr Cys Pro Cys Asp Thr Arg Leu Leu Met
995 1000 1005

Gln Ala Glu Gln Thr Ser Asp Gly Pro Asp Pro Cys Asp Met Val
1010 1015 1020

Lys Gln Pro Arg Tyr Arg Lys Gly Pro Asp Val Cys Phe Asp Asn
1025 1030 1035

Asn Val Leu Glu Asp Tyr Thr Asp Cys Gly Gly Val Ser Gly Leu
1040 1045 1050

Asn Pro Ser Leu Trp Ser Ile Phe Gly Leu Gln Phe Ile Leu Leu
1055 1060 1065

Trp Leu Val Ser Gly Ser Arg His Tyr Leu Leu
1070 1075

20557A US Sequence Listing as filed

<211> 1084

<212> PRT

<213> Mus musculus

<400> 29

Met Ala Ala Gly Cys Leu Leu Ala Leu Thr Leu Thr Leu Phe Gln Ser
1 5 10 15

Gly Leu Ile Gly Pro Ser Ser Glu Glu Pro Phe Pro Ser Pro Val Thr
20 25 30

Ile Lys Ser Trp Val Asp Lys Met Gln Glu Asp Leu Val Thr Leu Ala
35 40 45

Lys Thr Ala Ser Gly Val Thr Gln Leu Ala Asp Ile Tyr Glu Lys Tyr
50 55 60

Gln Asp Leu Tyr Thr Val Glu Pro Asn Asn Ala Arg Gln Leu Val Glu
65 70 75 80

Ile Ala Ala Arg Asp Ile Glu Lys Leu Leu Ser Asn Arg Ser Lys Ala
85 90 95

Leu Val Arg Leu Ala Met Glu Ala Glu Lys Val Gln Ala Ala His Gln
100 105 110

Trp Arg Glu Asp Phe Ala Ser Asn Glu Val Val Tyr Tyr Asn Ala Lys
115 120 125

Asp Asp Leu Asp Pro Glu Arg Asn Glu Ser Glu Pro Gly Ser Gln Arg
130 135 140

Ile Lys Pro Val Phe Ile Glu Asp Ala Asn Phe Gly Arg Gln Ile Ser
145 150 155 160

Tyr Gln His Ala Ala Val His Ile Pro Thr Asp Ile Tyr Glu Gly Ser
165 170 175

Thr Ile Val Leu Asn Glu Leu Asn Trp Thr Ser Ala Leu Asp Glu Val
180 185 190

Phe Lys Arg Asn Arg Asp Glu Asp Pro Thr Leu Leu Trp Gln Val Phe
195 200 205

Gly Ser Ala Thr Gly Leu Ala Arg Tyr Tyr Pro Ala Ser Pro Trp Val
210 215 220

Asp Asn Ser Arg Thr Pro Asn Lys Ile Asp Leu Tyr Asp Val Arg Arg
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20557A US Sequence Listing as filed

20337A_03 Sequence Listing as Filed																
225				230				235				240				
Arg	Pro	Trp	Tyr	Ile 245	Gln	Gly	Ala	Ala	Ser 250	Pro	Lys	Asp	Met	Leu 255	Ile	
Leu	Val	Asp	Val 260	Ser	Gly	Ser	Val	Ser 265	Gly	Leu	Thr	Leu	Lys 270	Leu	Ile	
Arg	Thr	Ser 275	Val	Ser	Glu	Met	Leu 280	Glu	Thr	Leu	Ser	Asp 285	Asp	Asp	Phe	
Val	Asn 290	Val	Ala	Ser	Phe	Asn 295	Ser	Asn	Ala	Gln	Asp 300	Val	Ser	Cys	Phe	
Gln 305	His	Leu	Val	Gln	Ala 310	Asn	Val	Arg	Asn	Lys 315	Lys	Val	Leu	Lys	Asp 320	
Ala	Val	Asn	Asn	Ile 325	Thr	Ala	Lys	Gly	Ile 330	Thr	Asp	Tyr	Lys	Lys 335	Gly	
Phe	Ser	Phe	Ala 340	Phe	Glu	Gln	Leu	Leu 345	Asn	Tyr	Asn	Val	Ser 350	Arg	Ala	
Asn	Cys	Asn 355	Lys	Ile	Ile	Met	Leu 360	Phe	Thr	Asp	Gly	Gly 365	Glu	Glu	Arg	
Ala	Gln 370	Glu	Ile	Phe	Ala	Lys 375	Tyr	Asn	Lys	Asp	Lys 380	Lys	Val	Arg	Val	
Phe 385	Thr	Phe	Ser	Val	Gly 390	Gln	His	Asn	Tyr	Asp 395	Arg	Gly	Pro	Ile	Gln 400	
Trp	Met	Ala	Cys	Glu 405	Asn	Lys	Gly	Tyr	Tyr 410	Tyr	Glu	Ile	Pro	Ser 415	Ile	
Gly	Ala	Ile	Arg 420	Ile	Asn	Thr	Gln	Glu 425	Tyr	Leu	Asp	Val	Leu 430	Gly	Arg	
Pro	Met	Val 435	Leu	Ala	Gly	Asp	Lys 440	Ala	Lys	Gln	Val	Gln 445	Trp	Thr	Asn	
Val	Tyr 450	Leu	Asp	Ala	Leu	Glu 455	Leu	Gly	Leu	Val	Ile 460	Thr	Gly	Thr	Leu	
Pro 465	Val	Phe	Asn	Val	Thr 470	Gly	Gln	Ser	Glu	Asn 475	Lys	Thr	Asn	Leu	Lys 480	

20557A US Sequence Listing as filed

Asn Gln Leu Ile Leu Gly Val Met Gly Val Asp Val Ser Leu Glu Asp
485 490 495

Ile Lys Arg Leu Thr Pro Arg Phe Thr Leu Cys Pro Asn Gly Tyr Tyr
500 505 510

Phe Ala Ile Asp Pro Asn Gly Tyr Val Leu Leu His Pro Asn Leu Gln
515 520 525

Pro Lys Asn Pro Lys Ser Gln Glu Pro Val Thr Leu Asp Phe Leu Asp
530 535 540

Ala Glu Leu Glu Asn Glu Ile Lys Val Glu Ile Arg Asn Lys Met Ile
545 550 555 560

Asp Gly Glu Ser Gly Glu Lys Thr Phe Arg Thr Leu Val Lys Ser Gln
565 570 575

Asp Glu Arg Tyr Ile Asp Lys Gly Asn Arg Thr Tyr Thr Trp Thr Pro
580 585 590

Val Asn Gly Thr Asp Tyr Ser Leu Ala Leu Val Leu Pro Thr Tyr Ser
595 600 605

Phe Tyr Tyr Ile Lys Ala Lys Leu Glu Glu Thr Ile Thr Gln Ala Arg
610 615 620

Tyr Ser Glu Thr Leu Lys Pro Asp Asn Phe Glu Glu Ser Gly Tyr Thr
625 630 635 640

Phe Ile Ala Pro Arg Glu Tyr Cys Asn Asp Leu Lys Pro Ser Asp Asn
645 650 655

Asn Thr Glu Phe Leu Leu Asn Phe Asn Glu Phe Ile Asp Arg Lys Thr
660 665 670

Pro Asn Asn Pro Ser Cys Asn Thr Asp Leu Ile Asn Arg Ile Leu Leu
675 680 685

Asp Ala Gly Phe Thr Asn Glu Leu Val Gln Asn Tyr Trp Ser Lys Gln
690 695 700

Lys Asn Ile Lys Gly Val Lys Ala Arg Phe Val Val Thr Asp Gly Gly
705 710 715 720

Ile Thr Arg Val Tyr Pro Lys Glu Ala Gly Glu Asn Trp Gln Glu Asn
725 730 735

20557A US Sequence Listing as filed

Pro Glu Thr Tyr Glu Asp Ser Phe Tyr Lys Arg Ser Leu Asp Asn Asp
740 745 750

Asn Tyr Val Phe Thr Ala Pro Tyr Phe Asn Lys Ser Gly Pro Gly Ala
755 760 765

Tyr Glu Ser Gly Ile Met Val Ser Lys Ala Val Glu Leu Tyr Ile Gln
770 775 780

Gly Lys Leu Leu Lys Pro Ala Val Val Gly Ile Lys Ile Asp Val Asn
785 790 800

Ser Trp Ile Glu Asn Phe Thr Lys Thr Ser Ile Arg Asp Pro Cys Ala
805 810 815

Gly Pro Val Cys Asp Cys Lys Arg Asn Ser Asp Val Met Asp Cys Val
820 825 830

Ile Leu Asp Asp Gly Gly Phe Leu Leu Met Ala Asn His Asp Asp Tyr
835 840 845

Thr Asn Gln Ile Gly Arg Phe Phe Gly Glu Ile Asp Pro Ser Met Met
850 855 860

Arg His Leu Val Asn Ile Ser Leu Tyr Ala Phe Asn Lys Ser Tyr Asp
865 870 875 880

Tyr Gln Ser Val Cys Asp Pro Gly Ala Ala Pro Lys Gln Gly Ala Gly
885 890 895

His Arg Ser Ala Tyr Val Pro Ser Ile Ala Asp Ile Leu Gln Ile Gly
900 905 910

Trp Trp Ala Thr Ala Ala Ala Trp Ser Ile Leu Gln Gln Leu Leu Leu
915 920 925

Ser Leu Thr Phe Pro Arg Leu Leu Glu Ala Val Glu Met Glu Glu Asp
930 935 940

Asp Phe Thr Ala Ser Leu Ser Lys Gln Ser Cys Ile Thr Glu Gln Thr
945 950 955 960

Gln Tyr Phe Phe Lys Asn Asp Thr Lys Ser Phe Ser Gly Leu Leu Asp
965 970 975

Cys Gly Asn Cys Ser Arg Ile Phe His Val Glu Lys Leu Met Asn Thr
980 985 990

20557A US Sequence Listing as filed

Asn Leu Val Phe Ile Met Val Glu Ser Lys Gly Thr Cys Pro Cys Asp
995 1000 1005

Thr Arg Leu Leu Met Gln Ala Glu Gln Thr Ser Asp Gly Pro Asp
1010 1015 1020

Pro Cys Asp Met Val Lys Gln Pro Arg Tyr Arg Lys Gly Pro Asp
1025 1030 1035

Val Cys Phe Asp Asn Asn Val Leu Glu Asp Tyr Thr Asp Cys Gly
1040 1045 1050

Gly Val Ser Gly Leu Asn Pro Ser Leu Trp Ser Ile Phe Gly Leu
1055 1060 1065

Gln Phe Ile Leu Leu Trp Leu Val Ser Gly Ser Arg His Tyr Leu
1070 1075 1080

Leu

<210> 30
<211> 1091
<212> PRT
<213> Rattus norvegicus

<400> 30

Met Ala Ala Gly Cys Leu Leu Ala Leu Thr Leu Thr Leu Phe Gln Ser
1 5 10 15

Trp Leu Ile Gly Pro Ser Ser Glu Glu Pro Phe Pro Ser Pro Val Thr
20 25 30

Ile Lys Ser Trp Val Asp Lys Met Gln Glu Asp Leu Val Thr Leu Ala
35 40 45

Lys Thr Ala Ser Gly Val Thr Gln Leu Ala Asp Ile Tyr Glu Lys Tyr
50 55 60

Gln Asp Leu Tyr Thr Val Glu Pro Asn Asn Ala Arg Gln Leu Val Glu
65 70 75 80

Ile Ala Ala Arg Asp Ile Glu Lys Leu Leu Ser Asn Arg Ser Lys Ala
85 90 95

Leu Val Arg Leu Ala Met Glu Ala Glu Lys Val Gln Ala Ala His Gln
100 105 110

20557A US Sequence Listing as filed

Trp Arg Glu Asp Phe Ala Ser Asn Glu Val Val Tyr Tyr Asn Ala Lys
115 120 125

Asp Asp Leu Asp Pro Glu Arg Asn Glu Ser Glu Ser Gly Ser Gln Arg
130 135 140

Ile Lys Pro Val Phe Ile Glu Asp Ala Asn Phe Gly Arg Gln Ile Ser
145 150 155 160

Tyr Gln His Ala Ala Val His Ile Pro Thr Asp Ile Tyr Glu Gly Ser
165 170 175

Thr Ile Val Leu Asn Glu Leu Asn Trp Thr Ser Ala Leu Asp Glu Val
180 185 190

Phe Lys Arg Asn Arg Asp Glu Asp Pro Thr Leu Leu Trp Gln Val Phe
195 200 205

Ala Ala Asp Arg Leu Ala Arg Tyr Tyr Pro Ala Ser Pro Trp Val Asp
210 215 220

Asn Ser Arg Thr Pro Asn Lys Ile Asp Leu Tyr Asp Val Arg Arg Arg
225 230 235 240

~~Pro Trp Tyr Ile Gln Gly Ala Ala Ser Pro Lys Asp Met Leu Ile Leu~~
245 250 255

Val Asp Val Ser Gly Ser Val Ser Gly Leu Thr Leu Lys Leu Ile Arg
260 265 270

Thr Ser Val Ser Glu Met Leu Glu Thr Leu Ser Asp Asp Asp Phe Val
275 280 285

Asn Val Ala Ser Phe Asn Ser Asn Ala Gln Asp Val Ser Cys Phe Gln
290 295 300

His Leu Val Gln Ala Asn Val Arg Asn Lys Lys Val Leu Lys Asp Ala
305 310 315 320

Val Asn Asn Ile Thr Ala Lys Gly Ile Thr Asp Tyr Lys Lys Gly Phe
325 330 335

Thr Phe Ala Phe Glu Gln Leu Leu Asn Tyr Asn Val Ser Arg Ala Asn
340 345 350

Cys Asn Lys Ile Ile Met Leu Phe Thr Asp Gly Gly Glu Glu Arg Ala
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20557A US Sequence Listing as filed

355

360

365

Gln Glu Ile Phe Ala Lys Tyr Asn Lys Asp Lys Lys Val Arg Val Phe
370 375 380

Thr Phe Ser Val Gly Gln His Asn Tyr Asp Arg Gly Pro Ile Gln Trp
385 390 395 400

Met Ala Cys Glu Asn Lys Gly Tyr Tyr Tyr Glu Ile Pro Ser Ile Gly
405 410 415

Ala Ile Arg Ile Asn Thr Gln Glu Tyr Leu Asp Val Leu Gly Arg Pro
420 425 430

Met Val Leu Ala Gly Asp Lys Ala Lys Gln Val Gln Trp Thr Asn Val
435 440 445

Tyr Leu Asp Ala Leu Glu Leu Gly Leu Val Ile Thr Gly Thr Leu Pro
450 455 460

Val Phe Asn Val Thr Gly Gln Ser Glu Asn Lys Thr Asn Leu Lys Asn
465 470 475 480

Gln Leu Ile Leu Gly Val Met Gly Val Asp Val Ser Leu Glu Asp Ile
485 490 495

Lys Arg Leu Thr Pro Arg Phe Thr Leu Cys Pro Asn Gly Tyr Tyr Phe
500 505 510

Ala Ile Asp Pro Asn Gly Tyr Val Leu Leu His Pro Asn Leu Gln Pro
515 520 525

Lys Asn Pro Lys Ser Gln Glu Pro Val Thr Leu Asp Phe Leu Asp Ala
530 535 540

Glu Leu Glu Asn Asp Ile Lys Val Glu Ile Arg Asn Lys Met Ile Asp
545 550 555 560

Gly Glu Ser Gly Glu Lys Thr Phe Arg Thr Leu Val Lys Ser Gln Asp
565 570 575

Glu Arg Tyr Ile Asp Lys Gly Asn Arg Thr Tyr Thr Trp Thr Pro Val
580 585 590

Asn Gly Thr Asp Tyr Arg Tyr Leu Ala Leu Val Leu Pro Thr Tyr Ser
595 600 605

20557A US Sequence Listing as filed

Phe Tyr Tyr Ile Lys Ala Lys Ile Glu Glu Thr Ile Thr Gln Ala Arg
610 615 620

Ser Lys Lys Gly Lys Met Lys Asp Ser Glu Thr Leu Lys Pro Asp Asn
625 630 635 640

Phe Glu Glu Ser Gly Tyr Thr Phe Ile Ala Pro Arg Glu Tyr Cys Asn
645 650 655

Asp Leu Lys Pro Ser Asp Asn Asn Thr Glu Phe Leu Leu Asn Phe Asn
660 665 670

Glu Phe Ile Asp Arg Lys Thr Pro Asn Asn Pro Ser Cys Asn Thr Asp
675 680 685

Leu Ile Asn Arg Ile Leu Leu Asp Ala Gly Phe Thr Asn Glu Leu Val
690 695 700

Gln Asn Tyr Trp Ser Lys Gln Lys Asn Ile Lys Gly Val Lys Ala Arg
705 710 715 720

Phe Val Val Thr Asp Gly Gly Ile Thr Arg Val Tyr Pro Lys Glu Ala
725 730 735

Gly Glu Asn Trp Gln Glu Asn Pro Glu Thr Tyr Glu Asp Ser Phe Tyr
740 745 750

Lys Arg Ser Leu Asp Asn Asp Asn Tyr Val Phe Thr Ala Pro Tyr Phe
755 760 765

Asn Lys Ser Gly Pro Gly Ala Tyr Glu Ser Gly Ile Met Val Ser Lys
770 775 780

Ala Val Glu Leu Tyr Ile Gln Gly Lys Leu Leu Lys Pro Ala Val Val
785 790 795 800

Gly Ile Lys Ile Asp Val Asn Ser Trp Ile Glu Asn Phe Thr Lys Thr
805 810 815

Ser Ile Arg Asp Pro Cys Ala Gly Pro Val Cys Asp Cys Lys Arg Asn
820 825 830

Ser Asp Val Met Asp Cys Val Ile Leu Asp Asp Gly Gly Phe Leu Leu
835 840 845

Met Ala Asn His Asp Asp Tyr Thr Asn Gln Ile Gly Arg Phe Phe Gly
850 855 860

20557A US Sequence Listing as filed

Glu	Ile	Asp	Pro	Arg	Met	Met	Arg	His	Leu	Val	Asn	Ile	Ser	Leu	Tyr
865					870					875				880	
Ala	Phe	Asn	Lys	Ser	Tyr	Asp	Tyr	Gln	Ser	Val	Cys	Asp	Pro	Gly	Ala
				885					890					895	
Ala	Pro	Lys	Gln	Gly	Ala	Gly	His	Arg	Ser	Ala	Tyr	Val	Pro	Ser	Ile
			900					905					910		
Thr	Asp	Ile	Leu	Gln	Ile	Gly	Trp	Trp	Ala	Thr	Ala	Ala	Ala	Trp	Ser
		915					920					925			
Ile	Leu	Gln	Gln	Leu	Leu	Leu	Ser	Leu	Thr	Phe	Pro	Arg	Leu	Leu	Glu
	930					935					940				
Ala	Val	Glu	Met	Glu	Glu	Asp	Asp	Phe	Thr	Ala	Ser	Leu	Ser	Lys	Gln
945					950					955					960
Ser	Cys	Ile	Thr	Glu	Gln	Thr	Gln	Tyr	Phe	Phe	Lys	Asn	Asp	Thr	Lys
				965					970					975	
Ser	Phe	Ser	Gly	Leu	Leu	Asp	Cys	Gly	Asn	Cys	Ser	Arg	Ile	Phe	His
			980					985					990		
Val	Glu	Lys	Leu	Met	Asn	Thr	Asn	Leu	Val	Phe	Ile	Met	Val	Glu	Ser
		995					1000					1005			
Lys	Gly	Thr	Cys	Pro	Cys	Asp	Thr	Arg	Leu	Leu	Met	Gln	Ala	Glu	
	1010					1015					1020				
Gln	Thr	Ser	Asp	Gly	Pro	Asp	Pro	Cys	Asp	Met	Val	Lys	Gln	Pro	
	1025					1030					1035				
Arg	Tyr	Arg	Lys	Gly	Pro	Asp	Val	Cys	Phe	Asp	Asn	Asn	Val	Leu	
	1040					1045					1050				
Glu	Asp	Tyr	Thr	Asp	Cys	Gly	Gly	Val	Ser	Gly	Leu	Asn	Pro	Ser	
	1055					1060					1065				
Leu	Trp	Ser	Ile	Phe	Gly	Leu	Gln	Phe	Ile	Leu	Leu	Trp	Leu	Val	
	1070					1075					1080				
Ser	Gly	Ser	Arg	His	Tyr	Leu	Trp								
	1085					1090									
<210>	31														
<211>	1091														

20557A US Sequence Listing as filed

<212> PRT

<213> Sus scrofa

<400> 31

Met Ala Ala Gly Cys Leu Leu Ala Leu Thr Leu Thr Leu Phe Gln Ser
1 5 10 15

Leu Leu Ile Gly Pro Ser Ser Gln Glu Pro Phe Pro Ser Ala Val Thr
20 25 30

Ile Lys Ser Trp Val Asp Lys Met Gln Glu Asp Leu Val Thr Leu Ala
35 40 45

Lys Thr Ala Ser Gly Val Asn Gln Leu Val Asp Ile Tyr Glu Lys Tyr
50 55 60

Gln Asp Leu Tyr Thr Val Glu Pro Asn Asn Ala Arg Gln Leu Val Glu
65 70 75 80

Ile Ala Ala Arg Asp Ile Glu Lys Leu Leu Ser Asn Arg Ser Lys Ala
85 90 95

Leu Val Arg Leu Ala Leu Glu Ala Glu Lys Val Gln Ala Ala His Gln
100 105 110

Trp Arg Glu Asp Phe Ala Ser Asn Glu Val Val Tyr Tyr Asn Ala Lys
115 120 125

Asp Asp Leu Asp Pro Glu Lys Asn Asp Ser Glu Pro Gly Ser Gln Arg
130 135 140

Ile Lys Pro Val Phe Ile Asp Asp Ala Asn Phe Gly Arg Gln Ile Ser
145 150 155 160

Tyr Gln His Ala Ala Val His Ile Pro Thr Asp Ile Tyr Glu Gly Ser
165 170 175

Thr Ile Val Leu Asn Glu Leu Asn Trp Thr Ser Ala Leu Asp Glu Val
180 185 190

Phe Lys Lys Asn Arg Glu Glu Asp Pro Ser Leu Leu Trp Gln Val Phe
195 200 205

Gly Ser Ala Thr Gly Leu Ala Arg Tyr Tyr Pro Ala Ser Pro Trp Val
210 215 220

Asp Asn Ser Arg Thr Pro Asn Lys Ile Asp Leu Tyr Asp Val Arg Arg
225 230 235 240

20557A US Sequence Listing as filed

Arg Pro Trp Tyr Ile Gln Gly Ala Ala Ser Pro Lys Asp Met Leu Ile
245 250 255

Leu Val Asp Val Ser Gly Ser Val Ser Gly Leu Thr Leu Lys Leu Ile
260 265 270

Arg Thr Ser Val Ser Glu Met Leu Glu Thr Leu Ser Asp Asp Asp Phe
275 280 285

Val Asn Val Ala Ser Phe Asn Ser Asn Ala Gln Asp Val Ser Cys Phe
290 295 300

Gln His Leu Val Gln Ala Asn Val Arg Asn Lys Lys Val Leu Lys Asp
305 310 315 320

Ala Val Asn Asn Ile Thr Ala Lys Gly Ile Thr Asp Tyr Lys Lys Gly
325 330 335

Phe Ser Phe Ala Phe Glu Gln Leu Leu Asn Tyr Asn Val Ser Arg Ala
340 345 350

Asn Cys Asn Lys Ile Ile Met Leu Phe Thr Asp Gly Gly Glu Glu Arg
355 360 365

Ala Gln Glu Ile Phe Ala Lys Tyr Asn Lys Asp Lys Lys Val Arg Val
370 375 380

Phe Thr Phe Ser Val Gly Gln His Asn Tyr Asp Arg Gly Pro Ile Gln
385 390 395 400

Trp Met Ala Cys Glu Asn Lys Gly Tyr Tyr Tyr Glu Ile Pro Ser Ile
405 410 415

Gly Ala Ile Arg Ile Asn Thr Gln Glu Tyr Leu Asp Val Leu Gly Arg
420 425 430

Pro Met Val Leu Ala Gly Asp Lys Ala Lys Gln Val Gln Trp Thr Asn
435 440 445

Val Tyr Leu Asp Ala Leu Glu Leu Gly Leu Val Ile Thr Gly Thr Leu
450 455 460

Pro Val Phe Asn Ile Thr Gly Gln Asn Glu Asn Lys Thr Asn Leu Lys
465 470 475 480

Asn Gln Leu Ile Leu Gly Val Met Gly Val Asp Val Ser Leu Glu Asp
485 490 495

20557A US Sequence Listing as filed

485

490

495

Ile Lys Arg Leu Thr Pro Arg Phe Thr Leu Cys Pro Asn Gly Tyr Tyr
 500 505 510

Phe Ala Ile Asp Pro Asn Gly Tyr Val Leu Leu His Pro Asn Leu Gln
 515 520 525

Pro Lys Asn Pro Lys Ser Gln Glu Pro Val Thr Leu Asp Phe Leu Asp
 530 535 540

Ala Glu Leu Glu Asn Asp Ile Lys Val Glu Ile Arg Asn Lys Met Ile
 545 550 555 560

Asp Gly Glu Ser Gly Glu Lys Thr Phe Arg Thr Leu Val Lys Ser Gln
 565 570 575

Asp Glu Arg Tyr Ile Asp Lys Gly Asn Arg Thr Tyr Thr Trp Thr Pro
 580 585 590

Val Asn Gly Thr Asp Tyr Ser Leu Ala Leu Val Leu Pro Thr Tyr Ser
 595 600 605

Phe Tyr Tyr Ile Lys Ala Lys Ile Glu Glu Thr Ile Thr Gln Ala Arg
 610 615 620

Ser Lys Lys Gly Lys Met Lys Asp Ser Glu Thr Leu Lys Pro Asp Asn
 625 630 635 640

Phe Glu Glu Ser Gly Tyr Thr Phe Ile Ala Pro Arg Asp Tyr Cys Asn
 645 650 655

Asp Leu Lys Ile Ser Asp Asn Asn Thr Glu Phe Leu Leu Asn Phe Asn
 660 665 670

Glu Phe Ile Asp Arg Lys Thr Pro Asn Asn Pro Ser Cys Asn Thr Asp
 675 680 685

Leu Ile Asn Arg Val Leu Leu Asp Ala Gly Phe Thr Asn Glu Leu Val
 690 695 700

Gln Asn Tyr Trp Ser Lys Gln Lys Asn Ile Lys Gly Val Lys Ala Arg
 705 710 715 720

Phe Val Val Thr Asp Gly Gly Ile Thr Arg Val Tyr Pro Lys Glu Ala
 725 730 735

20557A US Sequence Listing as filed

Gly Glu Asn Trp Gln Glu Asn Pro Glu Thr Tyr Glu Asp Ser Phe Tyr
740 745 750

Lys Arg Ser Leu Asp Asn Asp Asn Tyr Val Phe Thr Ala Pro Tyr Phe
755 760 765

Asn Lys Ser Gly Pro Gly Ala Tyr Glu Ser Gly Ile Met Val Ser Lys
770 775 780

Ala Val Glu Ile Tyr Ile Gln Gly Lys Leu Leu Lys Pro Ala Val Val
785 790 795 800

Gly Ile Lys Ile Asp Val Asn Ser Trp Ile Glu Asn Phe Thr Lys Thr
805 810 815

Ser Ile Arg Asp Pro Cys Ala Gly Pro Val Cys Asp Cys Lys Arg Asn
820 825 830

Ser Asp Val Met Asp Cys Val Ile Leu Asp Asp Gly Gly Phe Leu Leu
835 840 845

Met Ala Asn His Asp Asp Tyr Thr Asn Gln Ile Gly Arg Phe Phe Gly
850 855 860

Glu Ile Asp Pro Ser Leu Met Arg His Leu Val Asn Ile Ser Val Tyr
865 870 875 880

Ala Phe Asn Lys Ser Tyr Asp Tyr Gln Ser Val Cys Glu Pro Gly Ala
885 890 895

Ala Pro Lys Gln Gly Ala Gly His Arg Ser Ala Tyr Val Pro Ser Ile
900 905 910

Ala Asp Ile Leu His Ile Gly Trp Trp Ala Thr Ala Ala Ala Trp Ser
915 920 925

Ile Leu Gln Gln Phe Leu Leu Ser Leu Thr Phe Pro Arg Leu Leu Glu
930 935 940

Ala Val Glu Met Glu Asp Asp Asp Phe Thr Ala Ser Leu Ser Lys Gln
945 950 955 960

Ser Cys Ile Thr Glu Gln Thr Gln Tyr Phe Phe Asp Asn Asp Ser Lys
965 970 975

Ser Phe Ser Gly Val Leu Asp Cys Gly Asn Cys Ser Arg Ile Phe His
980 985 990

20557A US Sequence Listing as filed

Val Glu Lys Leu Met Asn Thr Asn Leu Ile Phe Ile Met Val Glu Ser
 995 1000 1005

Lys Gly Thr Cys Pro Cys Asp Thr Arg Leu Leu Ile Gln Ala Glu
 1010 1015 1020

Gln Thr Ser Asp Gly Pro Asp Pro Cys Asp Met Val Lys Gln Pro
 1025 1030 1035

Arg Tyr Arg Lys Gly Pro Asp Val Cys Phe Asp Asn Asn Ala Leu
 1040 1045 1050

Glu Asp Tyr Thr Asp Cys Gly Gly Val Ser Gly Leu Asn Pro Ser
 1055 1060 1065

Leu Trp Ser Ile Phe Gly Ile Gln Cys Val Leu Leu Trp Leu Leu
 1070 1075 1080

Ser Gly Ser Arg His Tyr Gln Leu
 1085 1090